

Claims

1. An electronic engine speed control system for a work machine utilizing an engine with a governor control movable between a plurality of positions so that a desired engine speed may be selected and utilized for driving a plurality of wheels through a hydrostatic transmission, the hydrostatic transmission capable of controlling the plurality of wheels to obtain a desired ground speed of the work machine independent of the selected engine speed; comprising:
- an electronic control module;
  - an operator switch connected to the control module and movable to a set position which sends an input signal with a desired engine speed value to the control module;
  - an engine sensor connectable between the engine and the control module for sensing the speed of the engine and sending an input signal with an actual engine speed value to the control module;
  - an actuator connectable between the control module and the governor control and responsive to a control signal from the control module for moving the governor control to any one of the plurality of positions, the control signal being delivered to the actuator as a function of the desired and actual values so that the engine speed is electronically set and maintained at the desired value; and
- means for disrupting the control signal so that the engine speed is no longer electronically set and maintained at the desired value.

2. The electronic engine speed control system of claim 1, wherein the means for disrupting the control signal includes disrupting the input signal between the operator switch and the control module.

3. The electronic engine speed control system of claim 1, includes a brake pedal operable with the plurality of wheels of the work machine and having a brake switch located therein in connection with the control module, wherein the means for disrupting the control signal includes the brake switch sending a disrupt signal to the control module.

4. The electronic engine speed control system of claim 1, wherein the engine speed is electronically set by the control module to the desired value through incremental increases in the engine speed over a predetermined period of time.

5. The electronic engine speed control system of claim 1, wherein the actuator includes an actuator arm and a mechanical link is connectable between the actuator arm and the governor control, the actuator being responsive to the control signal to move the actuator arm to a predefined position so that in cooperation with the mechanical link the governor control is moved to any one of the plurality of positions.

6. A work machine, comprising:  
an engine;  
a plurality of wheels;

- a source of hydraulic fluid;  
a hydrostatic transmission including a hydraulic pump connected with the engine, a motor, a pressure signal line connected between the pump and the motor for transferring hydraulic fluid at various flows therebetween so that the motor drives the plurality of wheels at various speeds responsive to the flow of the hydraulic fluid, and a valve disposed within the signal line and movable from a closed position to a plurality of open positions for selectively neutralizing the hydraulic fluid flow to control the ground speed of the work machine independent from the engine speed; and  
an electronic engine speed control system operatively associated with and located remotely from the hydrostatic transmission for setting and maintaining the engine at any desired speed during neutralization of the hydrostatic transmission.
7. The work machine of claim 6, including a means for disrupting the engine speed control system so that desired speed is no longer electronically set and maintained.
8. The work machine of claim 6, wherein the engine speed is electronically set to the desired speed incrementally over a predetermined period of time.
9. The work machine of claim 6, wherein the electronic engine speed control system includes an electronic control module, an operator switch connected to the control module and movable to a set

position which sends an input signal with a desired engine speed value to the control module, an engine sensor connectable between the engine and the control module for sensing the speed of the engine and sending  
5 an input signal with an actual engine speed value to the control module, an actuator connectable between the control module and the governor control and responsive to a control signal from the control module for moving the governor control to any one of the  
10 plurality of positions, the control signal being delivered to the actuator as a function of the desired and actual values so that the engine speed is electronically set and maintained at the desired speed, and means for disrupting the control signal so  
15 that the engine speed is no longer electronically set and maintained at the desired speed.

10. The work machine of claim 9, wherein the means for disrupting the control signal includes  
20 disrupting the input signal between the operator switch and the control module.

11. The work machine of claim 9, including a brake pedal operable with the plurality of wheels of  
25 the work machine and having a brake switch located therein in connection with the control module, wherein the means for disrupting the control signal includes the brake switch sending a disrupt signal to the control module.

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12. The work machine of claim 9, wherein the engine speed is electronically set by the control module to the desired engine speed value through

incremental increases in the engine speed over a predetermined period of time.

13. The work machine of claim 9, wherein  
5 the actuator includes an actuator arm and a mechanical link is connectable between the actuator arm and the governor control, the actuator being responsive to the control signal to move the actuator arm to a predefined position so that in cooperation with the  
10 mechanical link the governor control is moved to any one of the plurality of positions.

14. An electronic engine speed control system for a work machine utilizing an engine with a  
15 governor control movable between a plurality of positions so that a desired engine speed may be selected and utilized for driving a plurality of wheels through a transmission, the transmission being controllable to obtain a desired ground speed  
20 independent of the selected engine speed, comprising:  
an electronic control module;  
an operator switch connected to the control module and movable to a set position which sends an input signal with a desired engine speed value to the  
25 control module;  
an engine sensor connectable between the engine and the control module for sensing the speed of the engine and sending an input signal with an actual engine speed value to the control module;  
30 an actuator connectable between the control module and the governor control and responsive to a control signal from the control module for moving the governor control to any one of the plurality of

positions, the control signal being delivered to the actuator as a function of the desired and actual values so that the engine speed is electronically set and maintained at the desired speed; and

- 5 means for disrupting the input signal between the operator switch and the control module so that the engine speed is no longer electronically set and maintained at the desired speed.

- 10 15. The electronic speed control system of claim 14, wherein the engine speed is electronically set by the control module to the desired value through incremental increases in the engine speed over a predetermined period of time.

- 15 16. A method of setting and maintaining an engine speed for a work machine independent from the ground speed of the work machine, comprising the steps of:

- 20 providing an engine with a governor control movable to a plurality of positions for controlling the engine speed;  
selecting the engine speed by moving the governor control to one of the plurality of positions;  
25 providing a transmission connected with the engine for driving a plurality of wheels at a desired ground speed corresponding to the engine speed;  
selecting the ground speed independent from the engine speed by specifically controlling the  
30 transmission; and  
electronically setting and maintaining the engine at a desired speed during the specific control of the transmission.

17. The method of setting and maintaining the engine speed for a work machine of claim 16, including the step of:

5            disrupting the engine speed so that desired speed is no longer electronically set and maintained.

18. The method of setting and maintaining the engine speed for a work machine of claim 16, including the step of:

             setting the desired engine speed by changing the speed incrementally over a predetermined period of time.

15            19. The method of setting and maintaining the engine speed for a work machine of claim 16, wherein the step of electronically setting and maintaining the engine at a desired speed includes the steps of:

20            inputting a signal with a desired engine speed value from an operator switch to a control module;

             inputting a signal with an actual engine speed value from an engine sensor connected with the engine for sensing the speed of the engine to the control module; and

25            outputting a control signal as a function of the desired and actual values from the control module to an actuator for moving the governor control to any one of the plurality of positions.

20. The method of setting and maintaining the engine speed for a work machine of claim 19, including the step of:

- disrupting the control signal so that the  
5 engine speed is no longer electronically set and maintained at the desired speed.

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